RADIATION SAFETY STANDARD PROTOCOL REQUIREMENTS: IODINATIONS

Pre-Iodination

1. Prior to handling, or observing work with a volatile form of radioiodine for the first time, each individual will have a baseline thyroid bioassay. Thereafter, protocol users will respond promptly to Radiation Safety Branch (RSB) requests for thyroid bioassays.

2. Iodinations will be performed in an approved iodination box located in a chemical fume hood that has been certified within the last 12 months and has a green sticker indicating that the hood is suitable for work with toxic compounds or low-level radioactive material.

3. Prior to the performance of any protocol work, the RSB shall install a sampling station to monitor exhaust air effluent from the fume hood containing the iodination box.

4. Protocol users shall notify the RSB at least 1 business day in advance of each iodination by e-mailing iodinations@ors.od.nih.gov or by calling 435-7953. Researchers shall provide the date, approximate start and end times, and the room number where the iodination will be performed.

During Iodination

1. Individuals handling greater than 11,520 mCi-minutes/year of I-131 will wear whole body personnel dosimeters (e.g., film badge). A ring badge will be worn when handling greater than 540 mCi-minutes/year of I-131. No dosimeters are required for I-125. For I-123 use individuals handling greater than 35,700 mCi-minutes/year will wear a whole body dosimeter. A ring badge will be worn when handling greater than 1750 mCi-minutes/year.

2. Work with volatile radioactive material will stop and RSB will be notified immediately if a malfunction of the iodination hood is suspected or the hood has a red sticker on it.

3. The protocol user shall run a breathing zone air sample throughout the iodination. Air flow through the sampler will be adjusted to 4 liters per minute (LPM).

4. Tongs, forceps and other remote handling devices will be used when opening or otherwise manipulating source containers.

5. Waste containers, source vials, etc. with I-125 (1 to 25 millicuries), or I-123 (1 to 50 millicuries) will be shielded with 1/32 inch of lead or equivalent. Such containers with I-131 (up to 25 millicuries) will be shielded with 1 inch of lead or equivalent.

6. Stock solutions and concentrated (high-activity, low-volume) waste solutions will be segregated from other radioactive waste and stored in tightly-capped containers. Opening of such containers will only be performed inside of the iodination box with the exhaust fan for the box in the "on" condition.

7. Other waste containing I-123, I-125 and/or I-131 will be disposed with other radionuclides having half-lives of less than 100 days.

Post-Iodination

1. Following an iodination, hands, arms, clothing, and shoes will be monitored for contamination using a low energy sodium iodide scintillator for I-125 or a Geiger counter for I-123 or I-131. The work area, including the floor in front of the iodination facility, will be smeared for contamination. Any areas above 2200 dpm per 100 cm^2 will be immediately decontaminated.

2. A log book will be maintained with the following information: date, name of user, RSB number, radionuclide, activity in source vial, activity used, verification of a green sticker affixed to the hood, verification that the hood has been calibrated within 1 year, results from the post-iodination meter and smear surveys, verification that form NIH 88-17 was filled out, and an indication that CSI was contacted for the breathing zone sample.

3. When the iodination procedure is complete, the protocol user shall remove the breathing zone sampler, and call RSB at 435-7953 to arrange for the breathing zone sampler, along with a completed air sampling report form (NIH 88-17), to be picked up. All iodinators will be listed on this form, and the activity in the source vial will be indicated.

4. Any medical-pathological waste that is contaminated with radioiodine will be disposed of through the radioactive waste service after any infectious agents have been deactivated using a non-chlorine-based disinfectant such as Wescodyne.

5. Radioactive waste pickups will be scheduled promptly following iodinations.

Other

1. Any spill or personnel contamination resulting from protocol work will be reported to the RSB as soon as possible.

2. Each individual involved in a spill or personnel contamination incident associated with the protocol must have a thyroid bioassay between 8 and 72 hours following the incident. Call 496-4803 to schedule the bioassay.

3. The RSB will replace the charcoal filter in the iodination box at least annually and more frequently if needed.

4. All radioactive materials in use or storage, including waste, must be secured from unauthorized removal or access when unattended.

5. The RSB must be notified before any modifications are made to the iodination hood, protocol laboratory, or protocol procedures.

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